

**Fig. 1A**

Example Direct Shipping Cost Database (cost per 5 lbs.)

		112a	112b	112c		112d
		Distribution Center ("DC") 1	DC 2	DC 3		DC N
111a	0-5 miles, courier	\$10.00	-	-	...	-
111b	0-150 miles, domestic ground	\$2.25	\$2.00	\$2.00		\$2.00
111c	150-1000 miles, domestic ground	\$3.00	\$2.50	\$2.50		\$3.00
111d	1000-2500 miles, domestic ground	\$4.00	\$3.50	\$3.50		\$4.50
111e	2500+ miles, domestic ground	\$5.00	\$4.50	\$4.50		\$6.00
111f	0-3000 miles, domestic next day air	\$8.50	\$8.50	\$8.50		\$8.00
111g	3000+ miles, domestic next day air	\$12.00	\$12.00	\$12.00		\$11.00
111h	0-3000 miles, foreign air	-	\$19.00	\$19.00		\$20.00
	:					

**Fig. 1B**

Example Direct Labor Cost Database

		116a	116b	116c		116d
		DC 1, Processing Lane 1	DC 1, Processing Lane 2	DC 2, Processing Lane 1		DC N, Processing Lane M
115a	Order Type 1	\$0.50	\$0.50	\$0.75	...	-
115b	Order Type 2	-	\$0.75	\$0.75		-
115c	Order Type 3	\$1.00	-	\$0.75		-
	:					
115d	Giftwrapping	-	\$2.00	-		\$2.00
	:					

**Fig. 1C**

Example Direct Packing Material Cost Database

		120a	120b		120c
		DC 1	DC 2		DC N
119a	Order Type 1	\$0.50	\$0.50	...	\$0.50
119b	Order Type 2	\$0.20	\$0.25		-
	:				

**Fig. 1D**

20250307 15:59:59

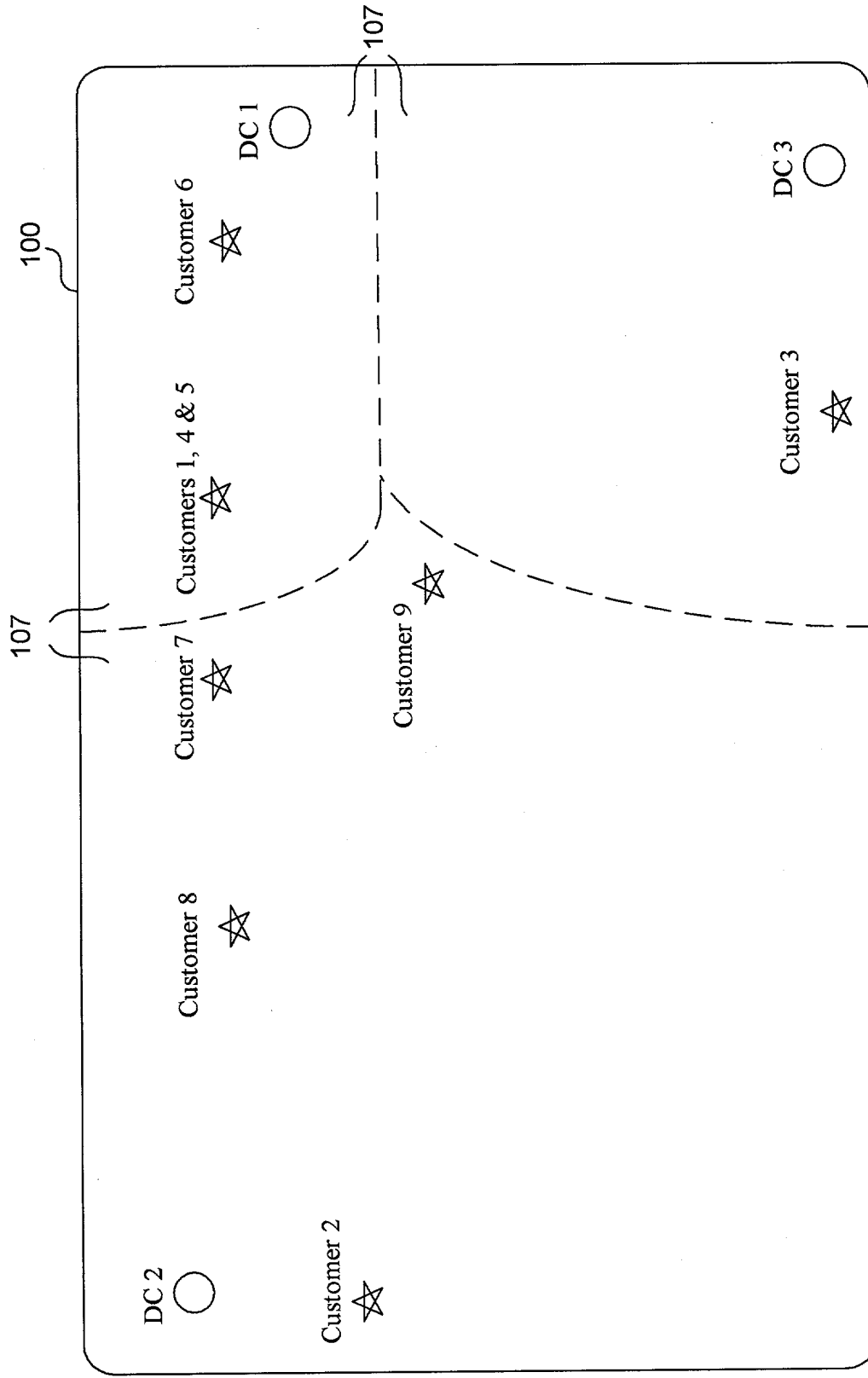


Fig. 1E

Example Estimated Customer Goodwill Cost From Expected Delivery Date Deviation Database

		124a	124b	124c	
		Customer 1	Customer 2	Customer 3	
		⋮			
123a	1 day early	\$-5.00	-	\$-1.00	...
123b	on-time	-	-	\$-0.50	
123c	1 day late	\$2.00	\$2.00	\$1.00	
123d	2 days late	\$5.00	\$2.50	\$1.00	
123e	3 days late	\$10.00	\$3.00	\$2.00	
123f	4 days late	\$25.00	\$5.00	\$1.75	
		⋮			

**Fig. 1F**

Example Estimated Customer Goodwill Cost From Expected Order Split Deviation Database

		128a	128b	128c	
		Customer 1	Customer 2	Customer 3	
		⋮			
127a	1 less order split	\$-2.50	-	\$-0.25	...
127b	expected # of order splits	-	-	\$-0.10	
127c	1 more order split	\$0.50	\$0.50	\$0.25	
127d	2 more order splits	\$1.25	\$0.65	\$0.25	
127e	3 more order splits	\$2.50	\$0.75	\$0.50	
127f	4 more order splits	\$6.25	\$1.25	\$0.40	
		⋮			

**Fig. 1G**

### Example New Order Optimal Allocation Database

		132a DC 1, Processing Lane 1	132b DC 1, Processing Lane 2	132c DC 2, Processing Lane 1		132d DC N, Processing Lane M
		⋮				
131a	7am-8am EST Order Type 1	25	15	60	...	-
131b	7am-8am EST Order Type 2	-	30	10		-
		⋮				
131c	8am-9am EST Order Type 1	25	25	50		-
131d	8am-9am EST Order Type 2	-	30	20		-
		⋮				

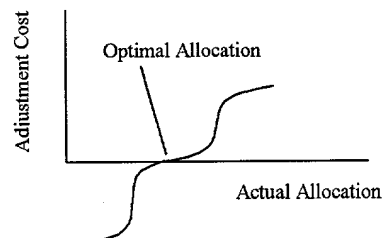
**Fig. 1H**

### Example New Order Actual Allocation Differential

		136a DC 1, Processing Lane 1	136b DC 1, Processing Lane 2	136c DC 2, Processing Lane 1		136d DC N, Processing Lane M
		⋮				
135a	7am-8am EST Order Type 1	-	+30	-5	...	-
135b	7am-8am EST Order Type 2	-	+5	-5		-
		⋮				

**Fig. 1I**

### Example New Order Allocation Adjustment Formula



**Fig. 1J**

Example Order Fulfillment Plan Option Comparison (for order by Customer 1 of Type 2 with 2 items)

	140a	140b	140c	140d	140e	140f	140z
	Direct Shipping Cost	Direct Labor Cost	Packing Material Cost	Delivery Date Customer Goodwill Cost	Order Split Customer Goodwill Cost	Allocation Adjustment Cost	Total Cost
139a	both items from DC 1, Processing Lane 2; standard shipping	\$3.00	\$0.75	\$0.20	-	\$0.25	\$4.20
139b	both items from DC 2, Processing Lane 1; standard shipping	\$3.50	\$0.75	\$0.25	-	-\$1.00	\$3.50
139c	item 1 from DC 1, Processing Lane 2; and item 2 from DC 2, Processing Lane 1; standard shipping	\$6.50	\$1.50	\$0.45	\$0.50	-\$0.35	\$8.60
	⋮						
139d	both items from DC 1, Processing Lane 2; Next Day Air shipping	\$8.50	\$0.75	\$0.20	-\$5.00	\$0.25	\$4.70
	⋮						

Fig. 1K

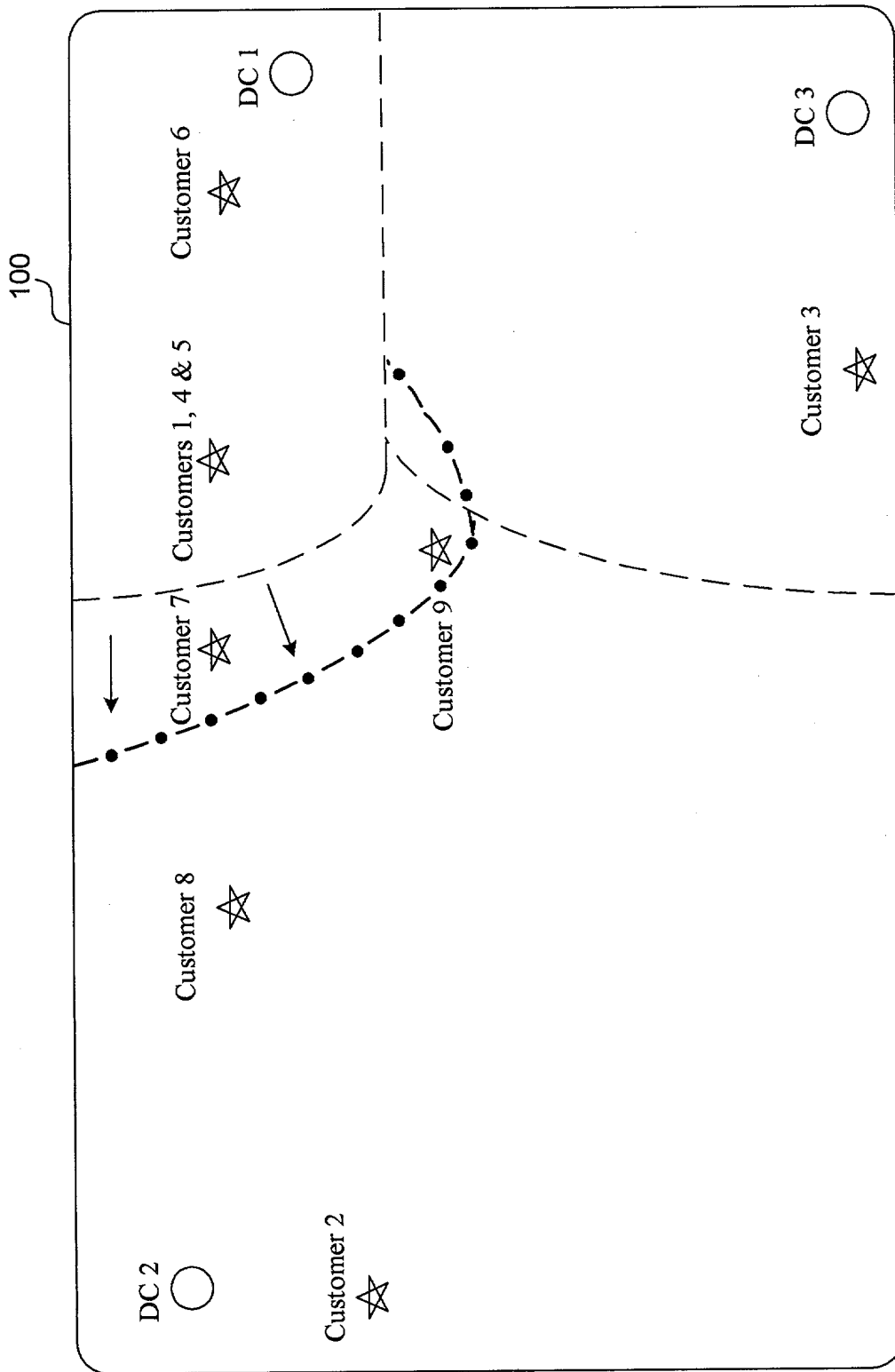


Fig. 1L

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Fig. 2A



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Home - Std Shipping - 09/07/xx - \$0.50

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Fig. 2B


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**Shipping to:** [Change](#)  
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 Work  
 123 Main St.  
 Seattle, WA 98101

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- ☒ Standard Shipping from the Seattle DC (09/08/xx - \$3.50)
- ☐ Next Day Air (09/04/xx - \$8.50)
- ☐ Standard Shipping + Enhanced Priority Processing (09/07/xx - \$5.50)
- ☐ Next Day Air + Immediate Processing (09/03/xx at 10:30 a.m. - \$16.50)
- ☐ Standard Shipping from the Atlanta DC (09/08/xx - \$3.85)
- ☐ Standard Shipping from the Disadvantaged Youth Processing Lane (09/07/xx - \$4.50 + \$1.50)

**Kenny Loggins Alive** Kenny Loggins - DVD  
 \$21.49 - Quantity: 1 - Usually ships in 4 to 6 days  
**Gift Options:** None [Change](#)

**Order Summary**

Items:	\$21.49
Shipping & Handling:	\$3.50
Total Before Tax:	\$24.99
Estimated Tax:	\$2.20
<b>Order Total:</b>	<b>\$27.19</b>

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**Fig. 2C**

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Order Placed: Sept. 2, 20xx at 02:45 PM PDT

Order Total: \$27.19

When will your items arrive?

**Not Yet Shipped:**

Item 1 will arrive at the Seattle DC from external inventory storage by 5 p.m. on 09/02/xx, and will be behind approximately 100 orders in a queue of orders ready for processing by Processing Lane 3. Order processing will begin at approximately 8 a.m. on 09/03/xx and will be completed by 8:30 a.m. on 09/03/xx. The order will be shipped from the DC at approximately 10 a.m. on 09/03/xx by ABC Shipping.

**Delivery Time:** 09/08/xx

Shipping Address: <a href="#">Change</a>	Items Ordered	Price
Customer 1 Work 123 Main St. Seattle, WA 98101	1 of: <b>Kenny Loggins Alive</b> Kenny Loggins - Availability: 1 in stock - Gift-wrap and note: None <a href="#">Change</a>	\$21.49
<b>Shipping Method:</b> <a href="#">Change</a> Standard Shipping		
<b>Shipping Option:</b> One shipment when complete order is ready.		

Item(s) Subtotal: \$21.49  
Shipping & Handling: \$3.50  
-----

Total Before Tax: \$24.99  
Estimated Tax: \$2.20  
-----

**Grand Total for This Order: \$ 27.19**

**Fig. 2D**

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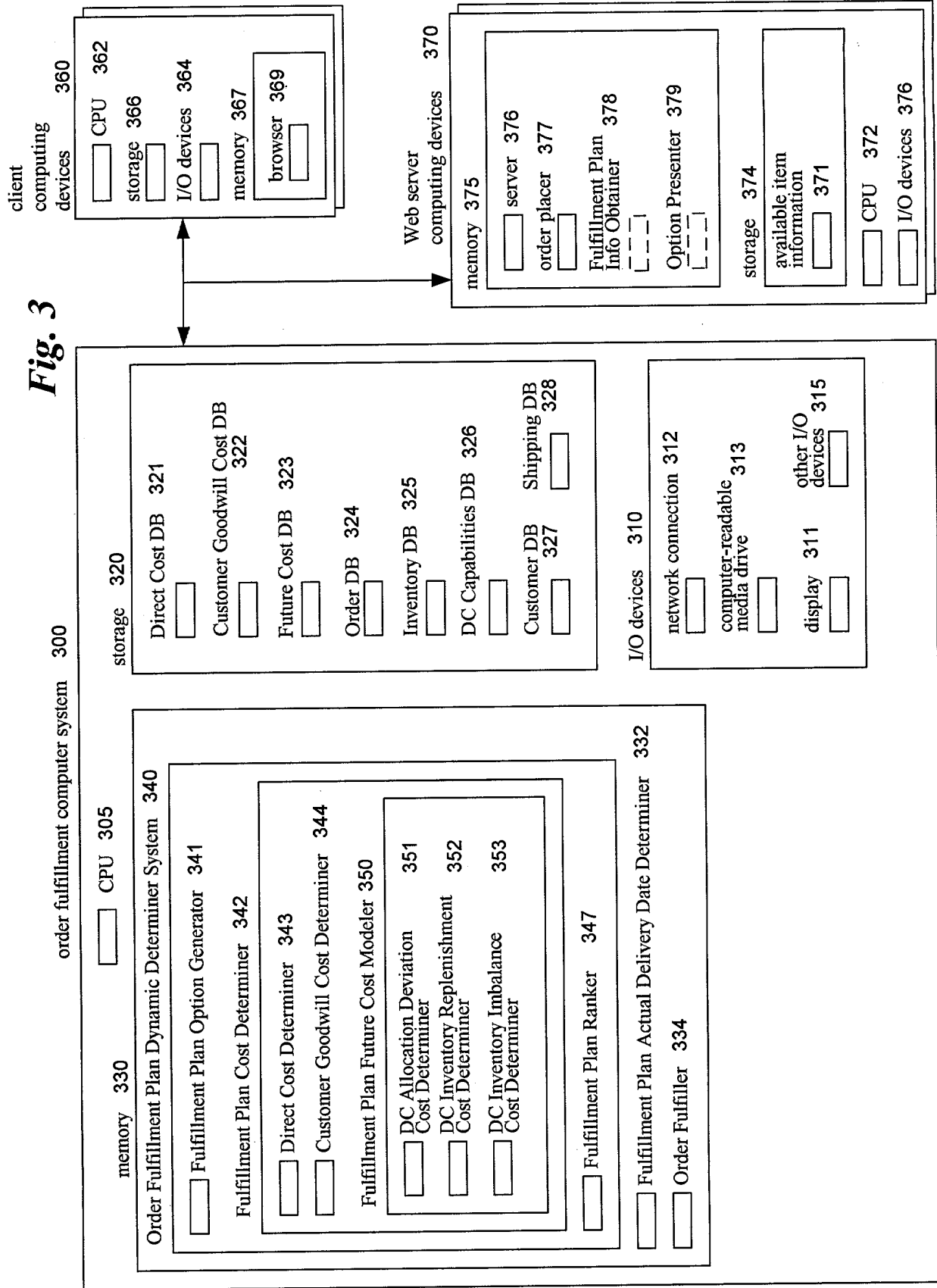
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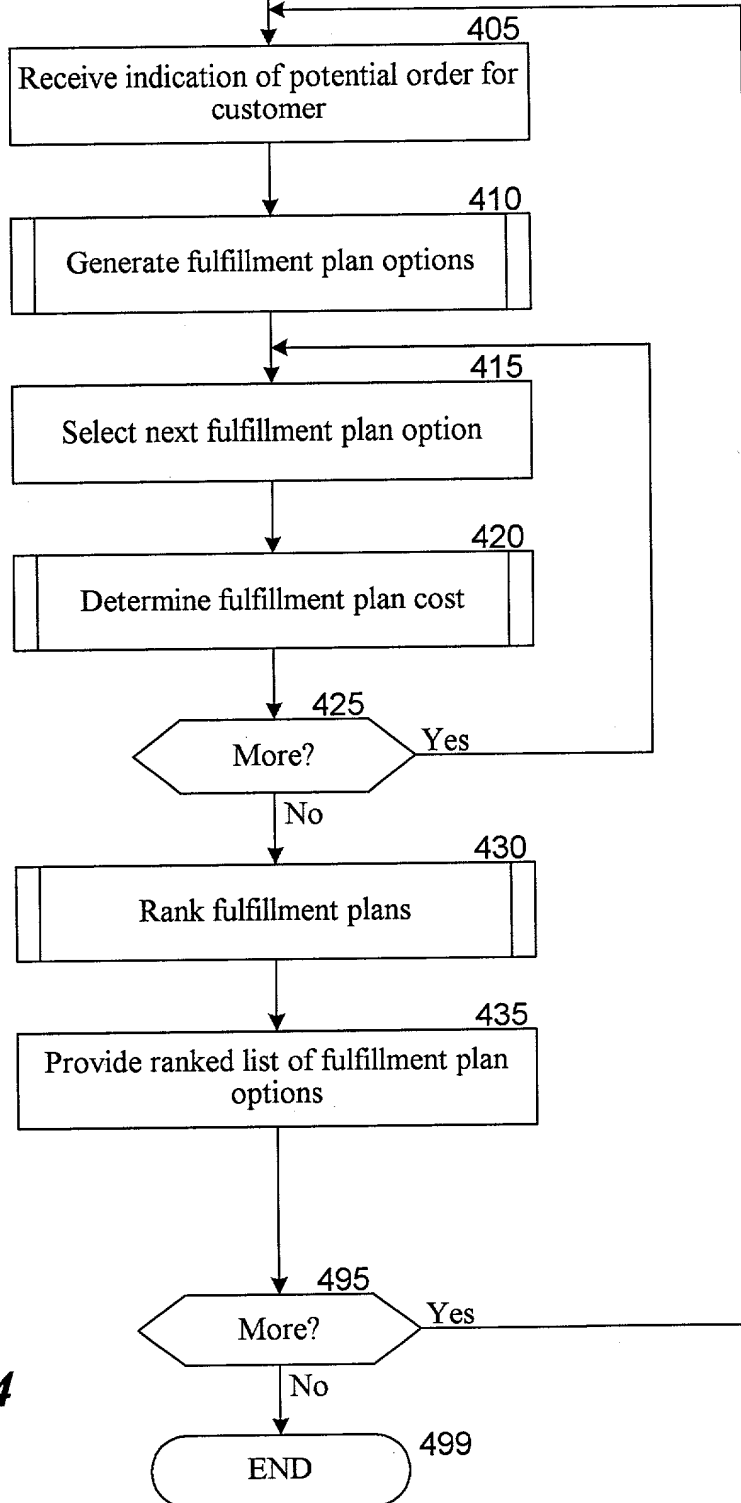
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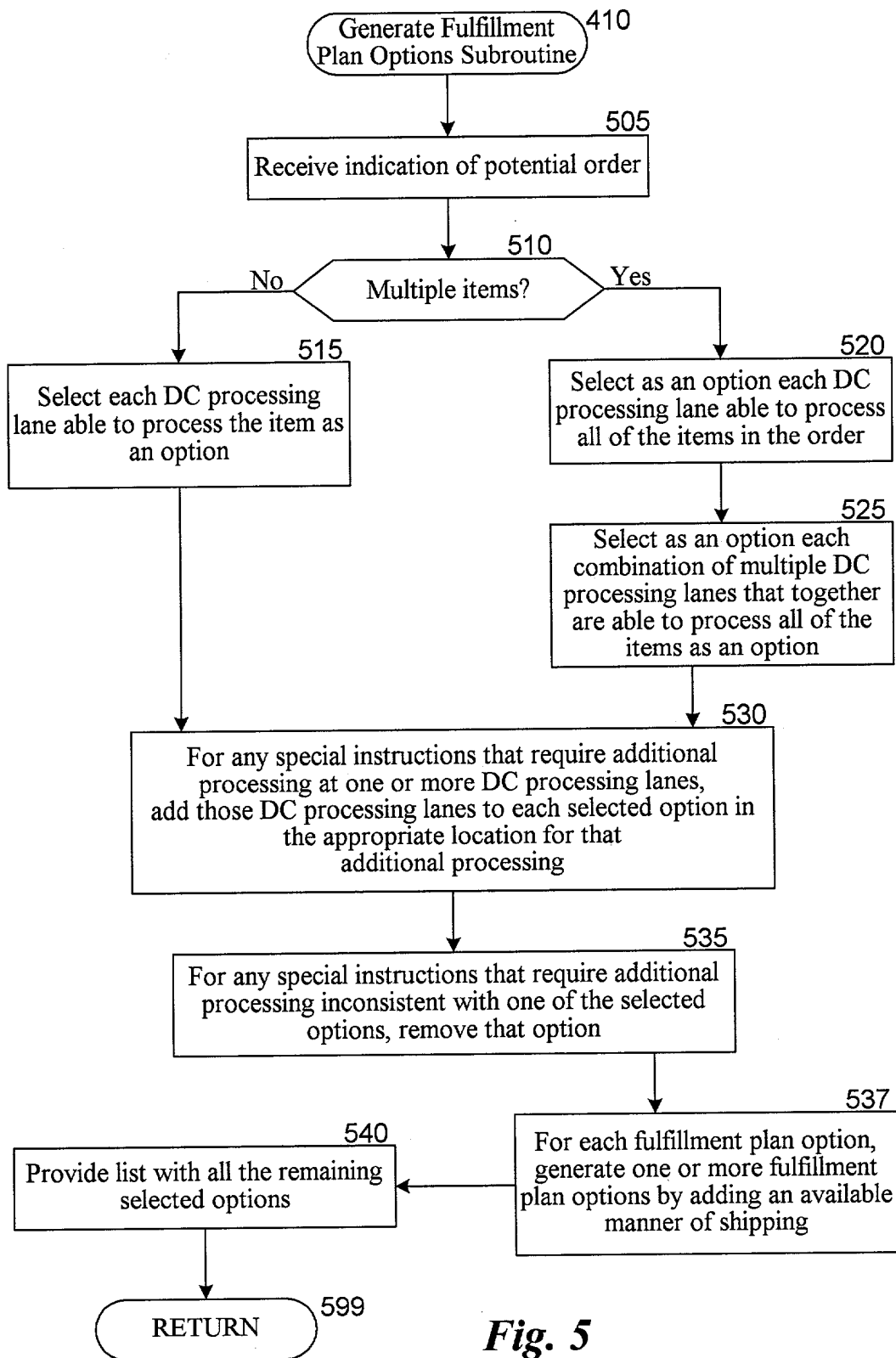
Fig. 2E



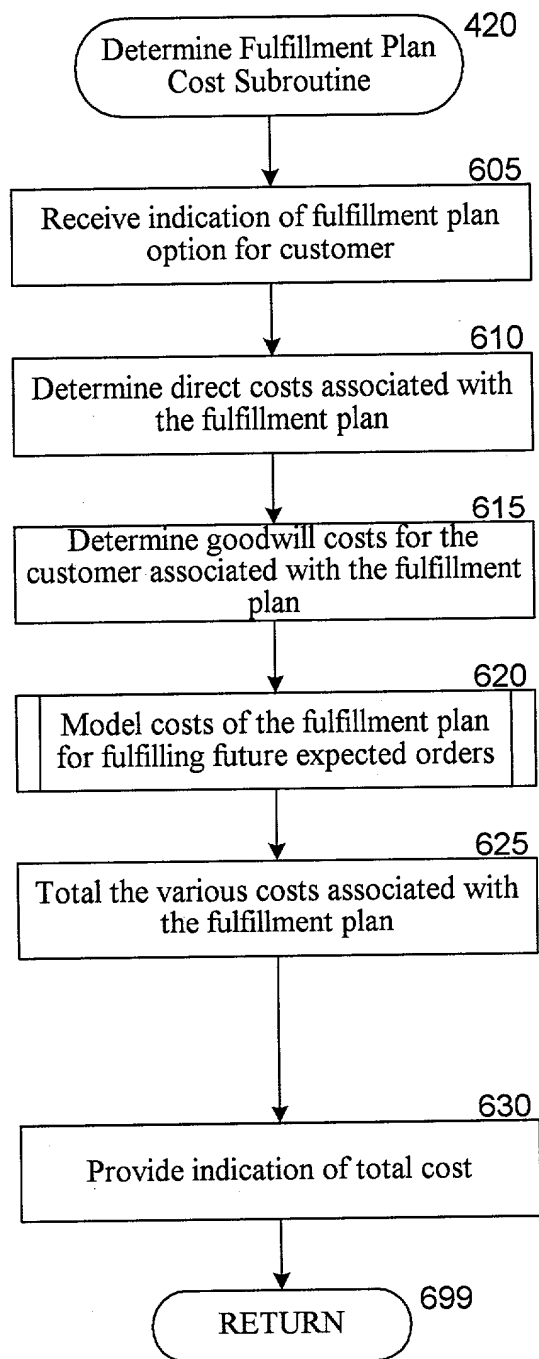
Order Fulfillment Plan  
Dynamic Determiner Routine 400



**Fig. 4**

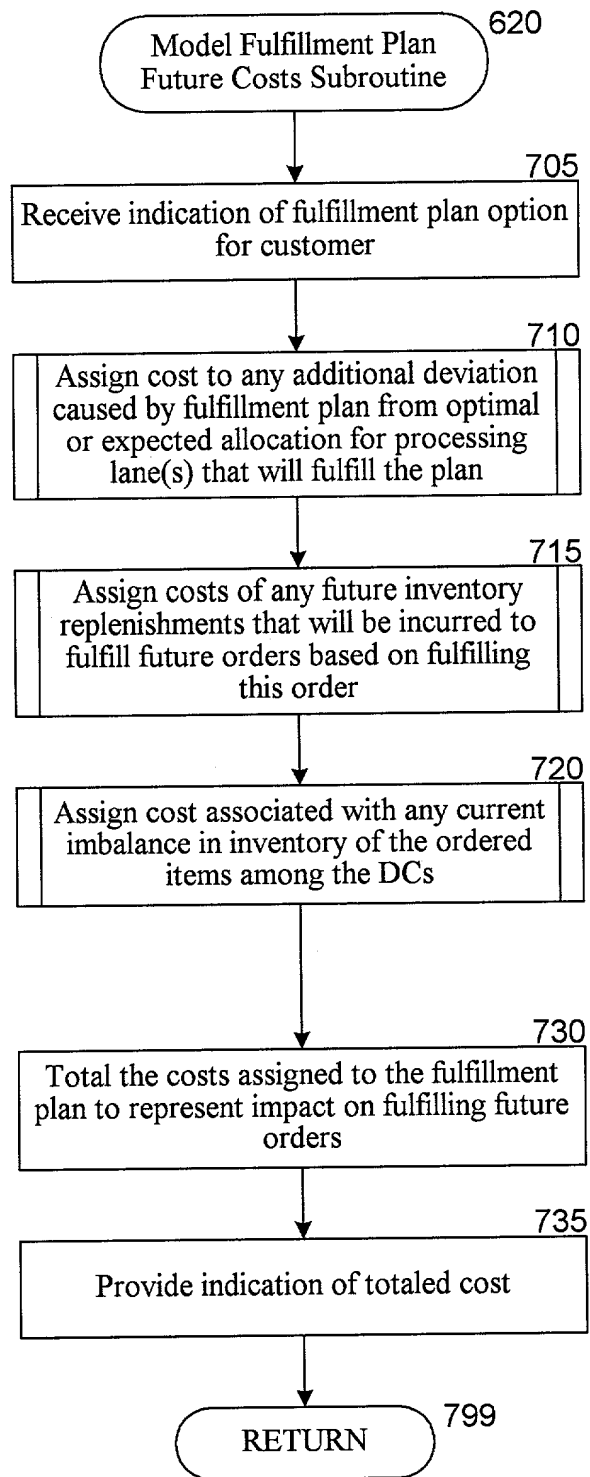


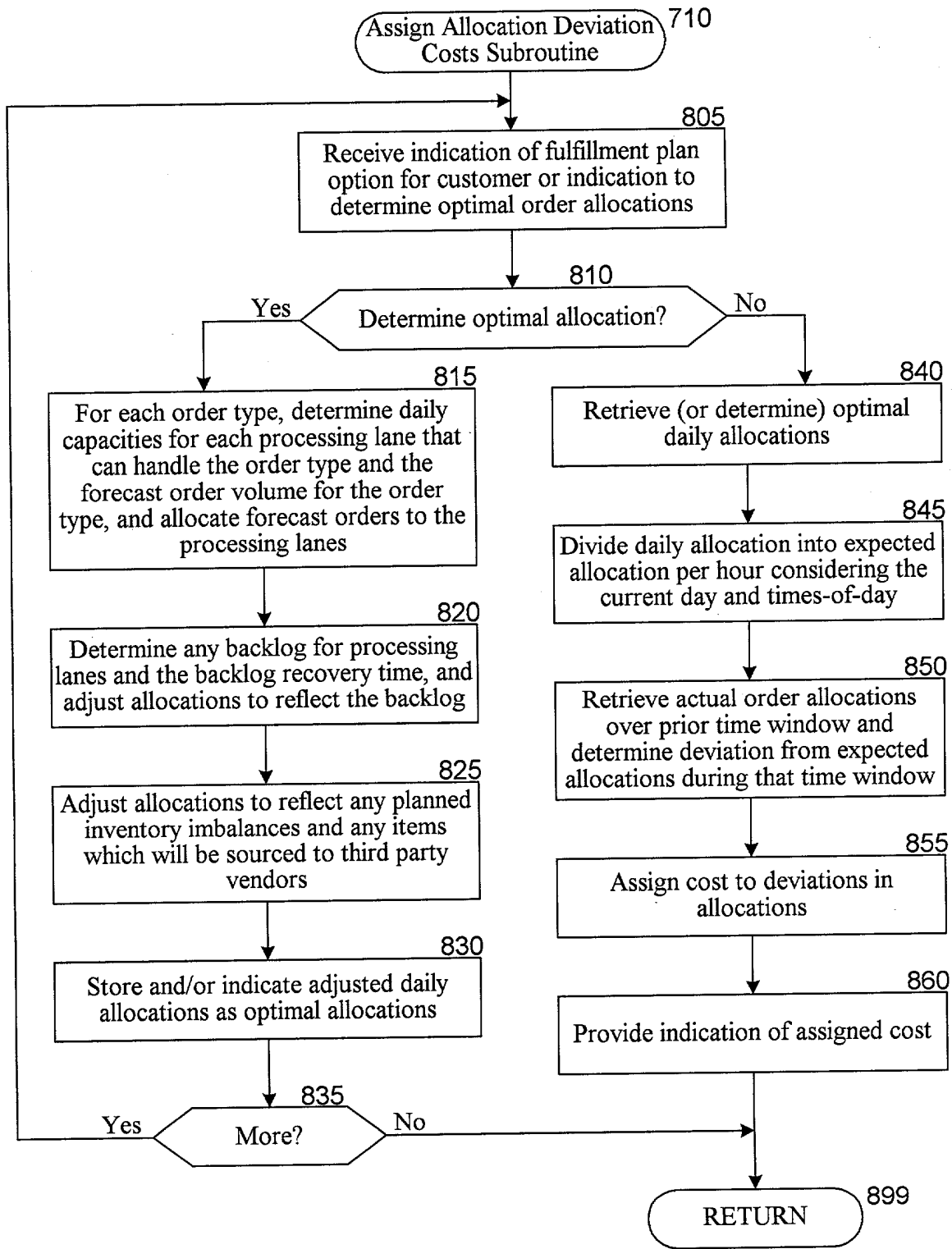
**Fig. 5**



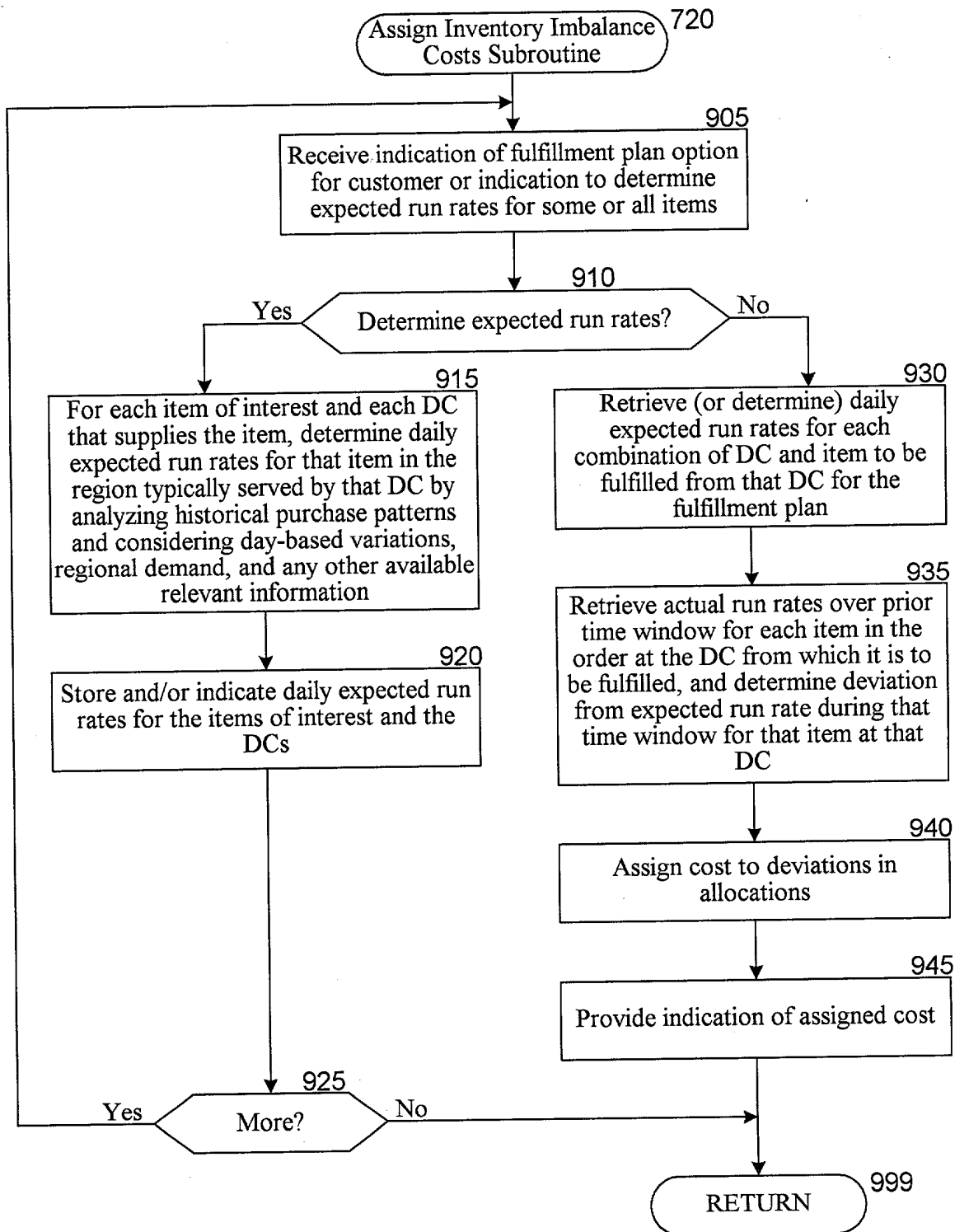
**Fig. 6**



**Fig. 7**



**Fig. 8**



**Fig. 9**

Assign Future Inventory  
Replenishments Costs Subroutine 715

Receive indication of fulfillment plan option for customer 1005

Determine default DC for the customer and/or fulfillment  
plan option 1010

Select next DC that is part of the fulfillment plan option 1015

Yes  
Default DC? 1020

No

Determine the current inventory and projected run rate at  
the selected DC for the item(s) to be fulfilled from that DC,  
and the time of scheduled replenishment of those items 1025

No  
Are one or more of the items in-stock now not  
expected to go out of stock before replenishment? 1030

Yes

For each such item, assign expected cost of expedited  
future replenishment for the ordered items and the  
expected cost of customer goodwill delivery delay for a  
future order for the ordered items to the fulfillment plan 1035

Yes  
More DCs? 1040

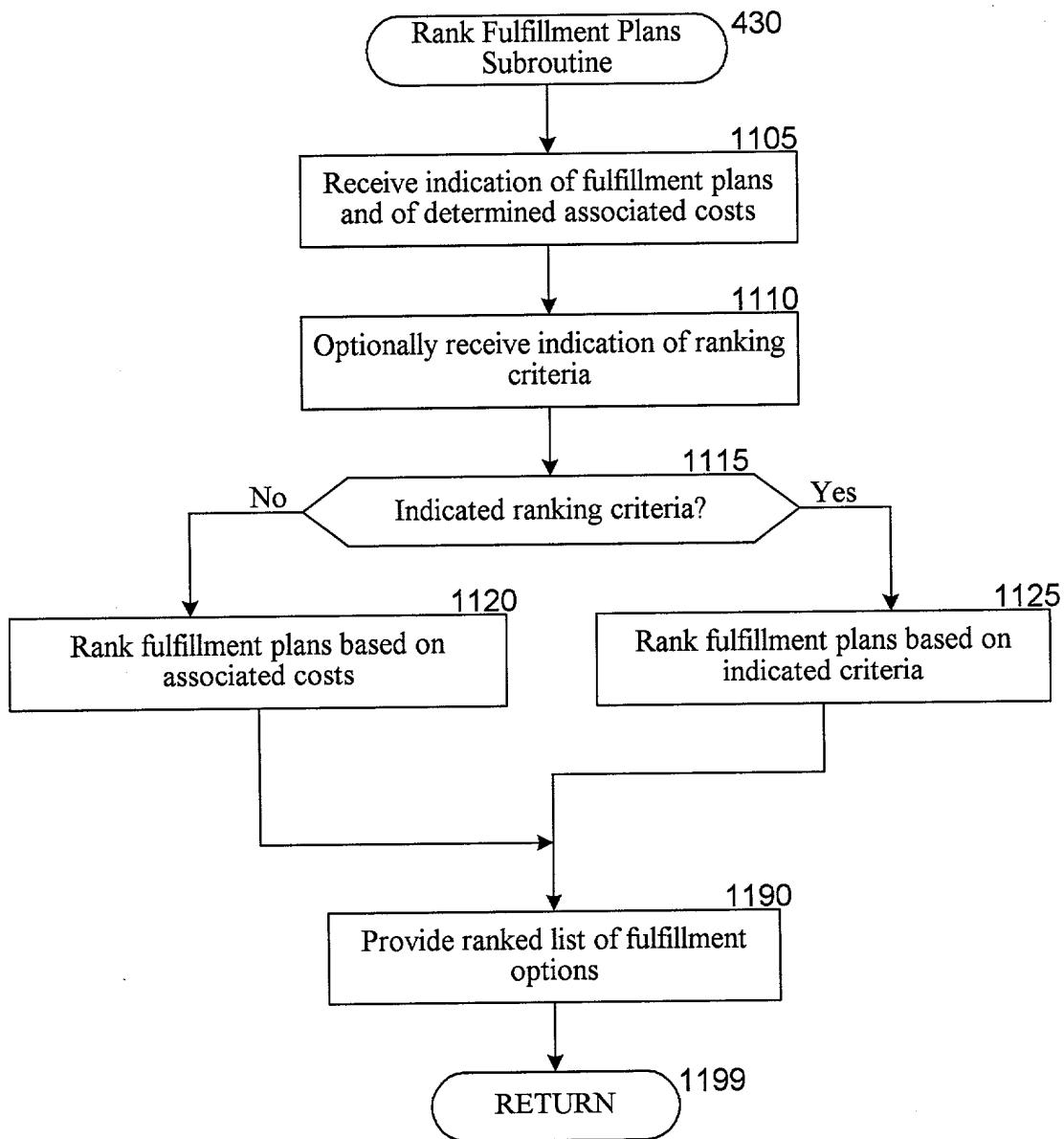
No

Total the assigned costs for the fulfillment plan, and  
provide indication of the total assigned costs 1045

RETURN 1099

Fig. 10

20250715.03000



**Fig. 11**

### Actual Delivery Date Determiner Routine

1200

Receive indication of fulfillment plan for customer

1205

For each group of items to be shipped together, determine time at which items will be ready to be shipped from DC by determining time at which items will begin being processed (e.g., based on queue of orders for those processing lanes and time to acquire the items) and adding time for the processing

1210

For each group of items to be shipped, determine amount of time for the shipping based on the type of shipping, the time that the group of items will be ready to be shipped, and the location of the recipient of the group of items

1215

For each group of items to be shipped, determine actual delivery time based on determined time of items ready to be shipped and the determined time for shipping

1220

Provide indications of the actual delivery times for the groups of items being shipped

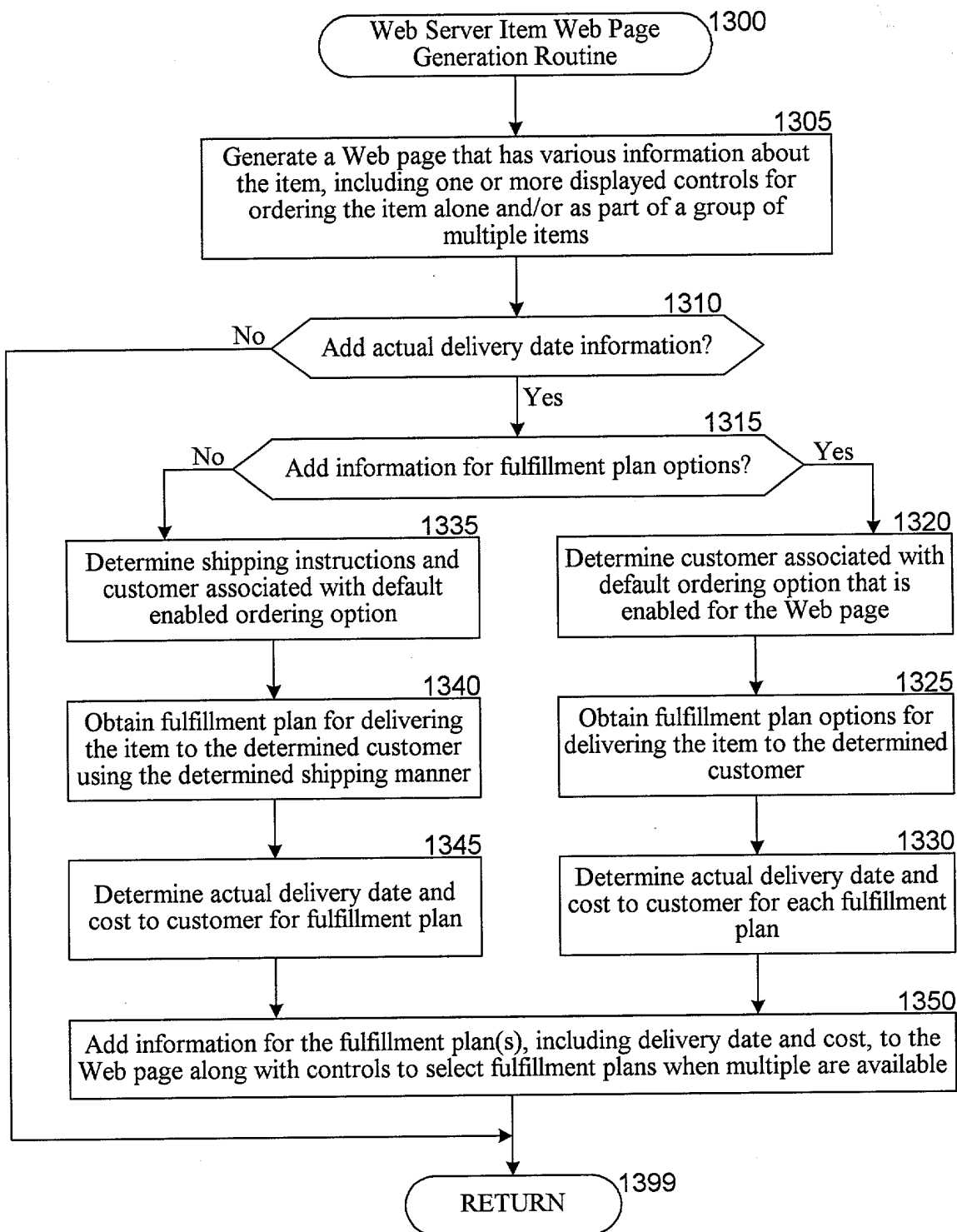
1225

## RETURN

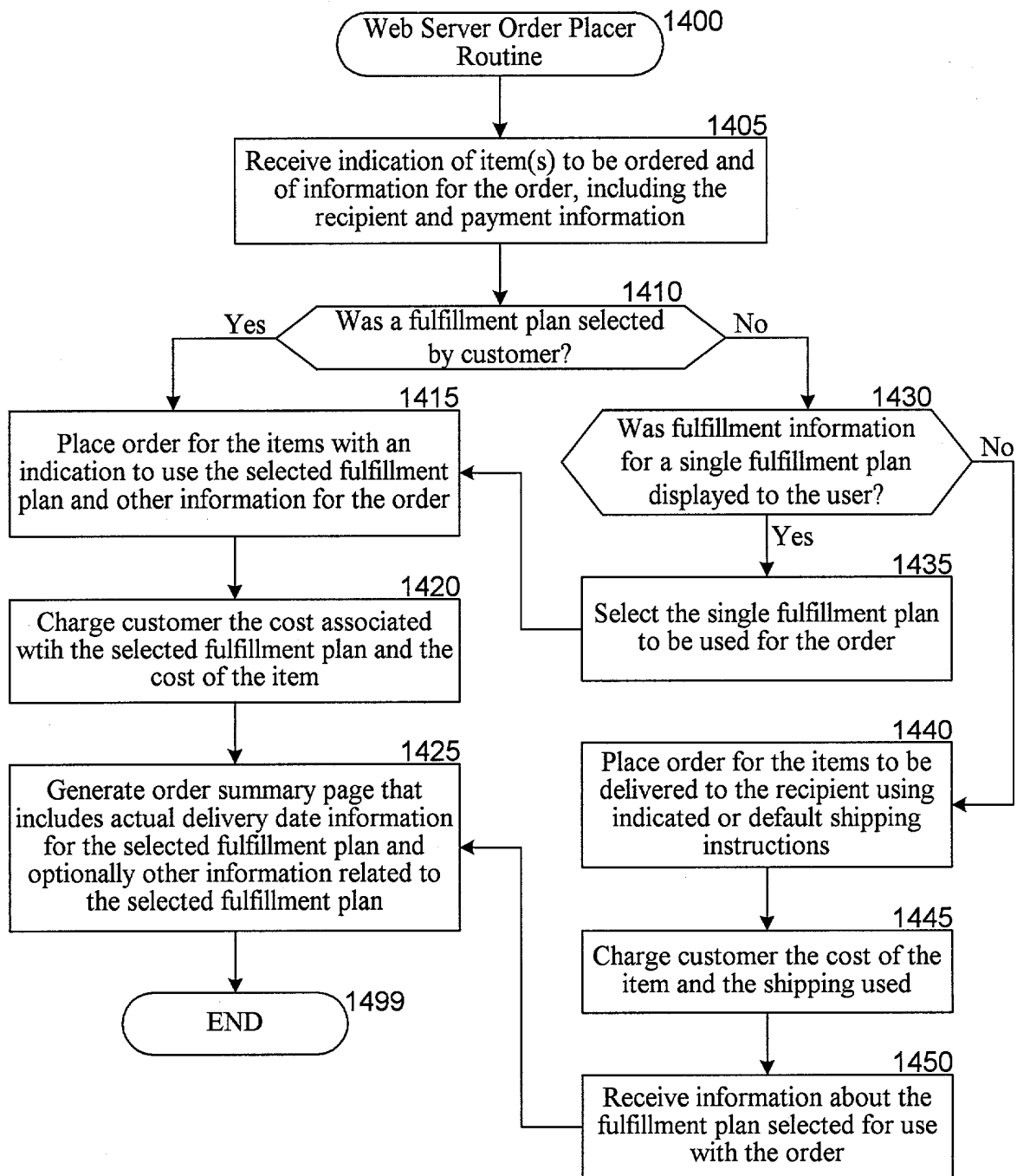
1299

**Fig. 12**

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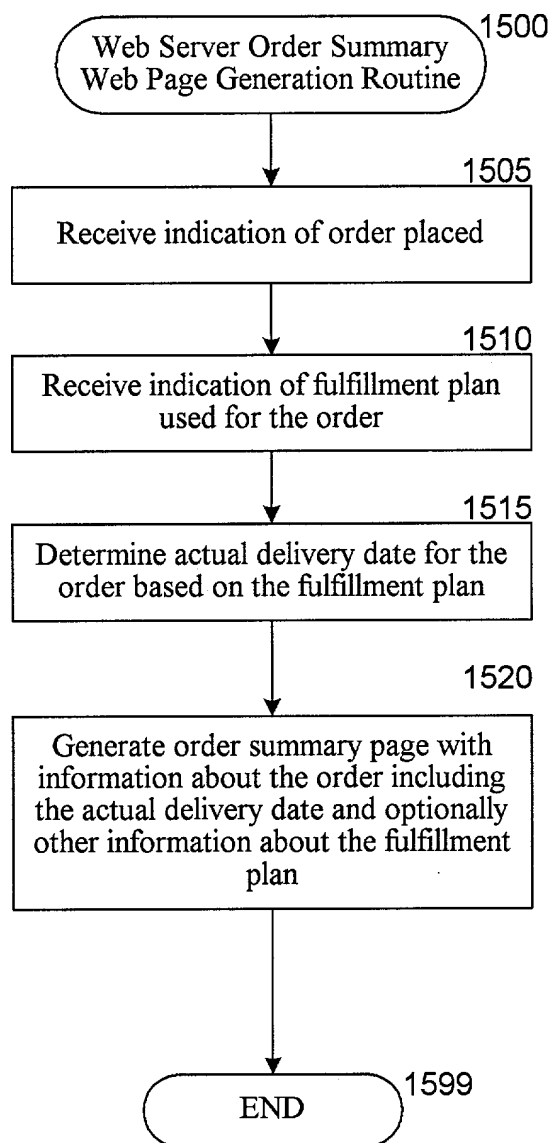


**Fig. 13**

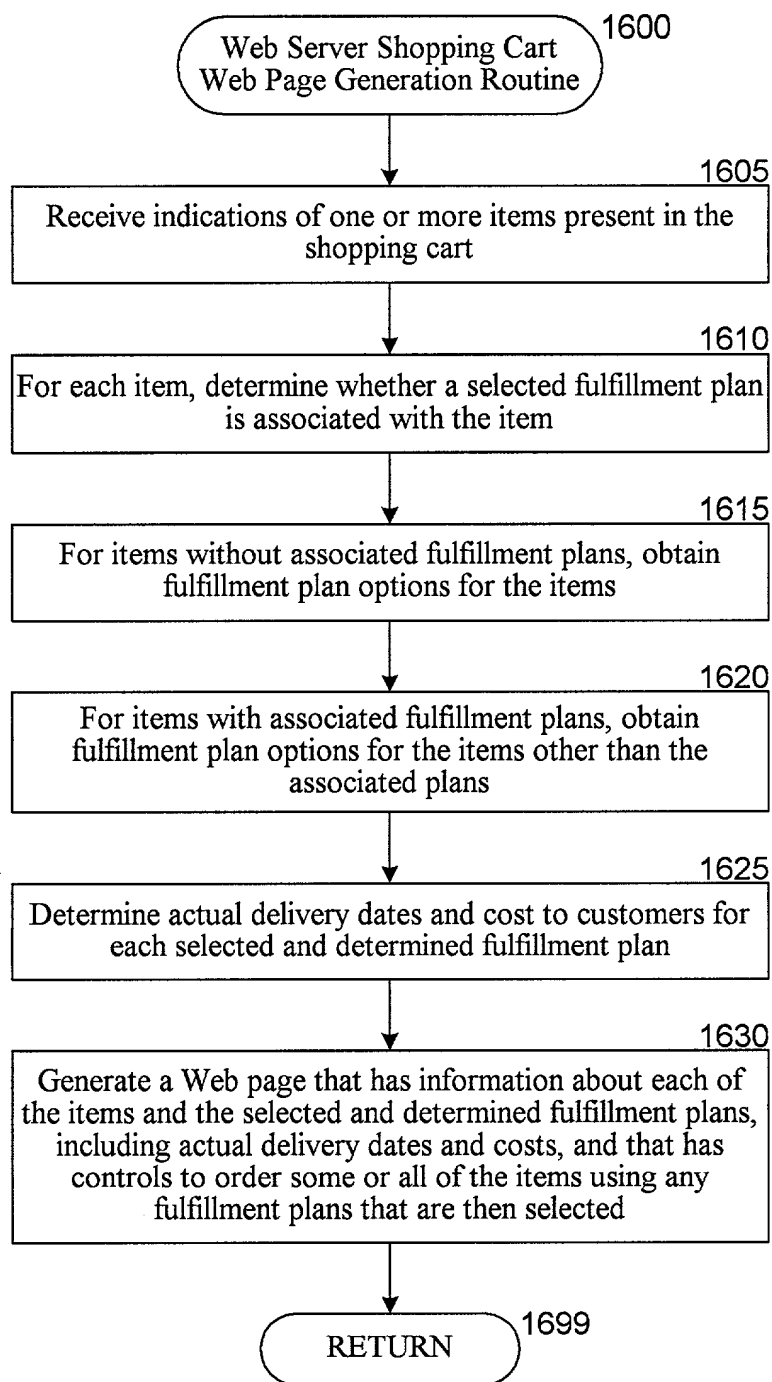


**Fig. 14**





**Fig. 15**



**Fig. 16**